I CLAIM

1. A rotor system comprising a rotary assembly within a casing with a gap between a tip edge of the rotary assembly and the casing, means to close the gap until rub contact between the tip edge and the casing and means to detect rub contact whereupon control means act to open the gap to a desired value.

2. A system as claimed in claim 1 wherein the means to detect rub contact is by detection of vibration.

3. A system as claimed in claim 1 wherein the rotary assembly is formed from any one of the group comprising compressor or turbine blades secured about a rotary bearing.

4. A system as claimed in claim 3 wherein the rotor blades are formed into a cascade of blade rows in order to provide the rotary assembly.

5. A system as claimed in claim 1 wherein the means to close the gap between the rotary assembly and the casing is by constriction of the casing.

6. A system as claimed in claim 5 wherein the constriction is radial.

7. A system as claimed in claim 5 wherein the constriction is by tangential displacement towards the centre of the casing.

8. A system as claimed in claim 5 wherein the constriction is through a single cuff.

9. A system as claimed in claim 1 wherein the means to close the gap between the rotary assembly and the casing is by selective cooling of the rotary assembly whereby relative constriction or expansion of that rotary assembly dependent upon the selective cooling adjusts the position of the tip edge as required in order to achieve the desire value of the gap.

10. A system as claimed in claim 1 wherein the means to close the gap between the rotary assembly and the casing is

by axial displacement of casing segments mounted upon an eccentric rotation arrangement whereby rotation of the eccentric rotation arrangement alters the angular presentation between each segment and the rotary assembly in order to vary the gap between them to the desired value.

11. A system as claimed in claim 5 wherein the constriction is through multiple constriction cuffs to provide respective casing segments between those cuffs, each individual casing segment being displaceable in order to provide constriction of the casing.

12. A system as claimed in claim 11 wherein the control means is arranged to act upon individual casing segments in order to open the gap to the desired value.

13. A system as claimed in claim 1 wherein the control means also controls the means to close the gap between the rotary assembly and the casing.

14. A system as claimed in claim 1wherein the means to detect rub contact comprises at least one sensor appropriately located to determine rub contact throughout the casing.

15. A system as claimed in claim 1wherein the means to detect rub contact comprises a multiple sensor system for more sensitive operation and/or more rapid determination of rub contact and/or facilitate the determination of rub contact position between the tip edge and the casing.

16. A system as claimed in claim 2 wherein the control means acts dependent upon the means to detect vibration in order to selectively open the gap to the desired value dependent upon the vibration detected.

17. A system as claimed in claim 16 wherein the desired value for the gap and/or the speed of opening is dependent upon the severity of vibration and/or its frequency and/or any harmonics in the vibration detected by the means to detect vibration.

18. A system as claimed in claim 1 wherein the means to detect rub contact will allow determination of the point of

rub contact by a triangulation technique.

19. A system as claimed in claim 18 when dependent upon claim 2 wherein the triangulation technique depends upon signals received from several vibration sensors or through a consideration of primary (direct) vibration recovery and reflected vibration recovery from reflective surfaces determined by the means to detect vibration as a wave harmonic.

20. A system as claimed in claim 1 wherein the means to detect rub contact or the control means may utilise time of flight or propagation determination in order to approximate rub contact position between the tip edge and the casing.

21. A system as claimed in claim 1 wherein specific singer areas or elements are provided in the casing in order to provide distinct rub contact responses to rub contact which can be determined by the means to detect rub contact and/or the control means.

22. A system as claimed in claim 21 wherein such distinct responses from each singer element is determinable by the means to detect rub contact and/or the control means by knowledge of each singer element location being utilised to determine the approximate location of rub contact between the tip edge and the casing.

23. A system as claimed in claim 21 wherein the singer elements or areas are more readily replaceable or provide less abrasion or provide less mutual damage to the tip edge and the casing during rub contact.

24. A method of regulating a gap between a rotary assembly and a casing in an engine, the method comprising closing the gap until rub contact between the rotary assembly and the casing, detecting rub contact and opening the gap thereafter to a desired value.

25. A method as claimed in claim 24 wherein detecting rub contact is by determination of vibration upon such rub contact.

26. An engine including a system as claimed in claim 1.

27. An engine operated in accordance with the method as claimed in claim 24.

28. A rotor system calibration arrangement comprising a rotor system as claimed in claim 1 whereby the control means includes means to periodically set a reference datum for the desired value of the gap and mean to operate an open loop control strategy dependent upon responses from the means to detect rub contact.